Q7: a) Show that

$$\lim_{n \to 0} \frac{3^n - 2^n}{2n} = \frac{1}{2} \log \frac{3}{2}$$

b) Find the derivative of:

$$(an+b)^n$$

by first principle:

Q8: a) $(e^{an} + \sin an + a^{en})$

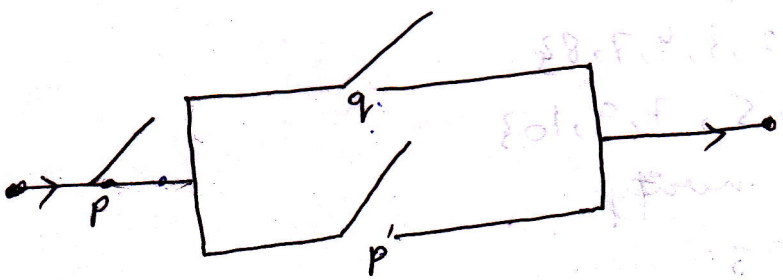
b) $\tan n$

c) $\frac{2n}{1+n^2}$

Q9: a) Prove that in a Boolean algebra

$(a')' = a$

b) Write down the truth table for the switching CKT:



p	q	p'	$p \cdot q + p'$	$p \cdot (q + p')$